IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) An optical access network including a plurality of optical network units coupled to an optical line terminal in a ring topology, in which the optical network units are connected together in a series, the optical line terminal being connected to ~~the~~ a first optical network unit in the series[[,]] and ~~the~~ a last optical network unit in the series ~~being connected to the optical line terminal~~, and wherein each of the connections to and from each optical network unit is ~~are~~ via a protection switch, the protection switch comprising:

means for monitoring the connections from the optical network units to detect a loss of signal from [[an]] the optical network ~~unit~~ units, and

a plurality of switching elements, one for each optical network unit, responsive to the detection of loss of signal from ~~the~~ a respective optical network unit to switch the respective optical network unit out of the series such that continuity of the ring topology is maintained among remaining of the plurality of optical network units.

2. (currently amended) The optical access network of claim 1, wherein the plurality of switching elements are cross-bar switches arranged so that, when ~~an~~ the respective optical network unit is switched out of the series, the connections to and from the respective optical network unit are connected together.

3. (currently amended) The optical access network of claim 1, wherein the means for monitoring comprises a plurality of photodetectors, each photodetector being arranged to detect signals on the connection from a ~~respective~~ different optical network unit.

4. (original) The optical access network of claim 3, wherein each photodetector is arranged to control its respective switching element directly.

5. (original) The optical access network of claim 3, wherein the protection switch further comprises a controller coupled to the photodetectors, the controller being adapted for controlling the plurality of switching elements.

6. (original) The optical access network of claim 1, the protection switch further comprising a controller arranged to control the plurality of switching elements, wherein the means for monitoring comprises a photodetector connected to the controller and arranged to monitor optical signals in the ring, the controller being arranged to toggle at least one of the plurality of switching elements in the event of a loss of signal in the ring to identify a faulty connection.

7. (original) The optical access network of claim 1, wherein the means for monitoring comprises a controller arranged to control the plurality of switching elements, the controller including:

a first receiver coupled to the optical line terminal for receiving downstream optical signals from the optical line terminal;

a first transmitter for re-transmitting the downstream optical signals to the first optical network unit in the series;

a second receiver for receiving upstream optical signals from the last optical network unit in the series;

a second transmitter for re-transmitting the upstream optical signals to the optical line terminal; and

a processor arranged to control the switching elements, the processor being arranged to toggle at least one of the plurality of switching elements in the event of a loss of signal in the ring to identify a faulty connection.

8. (original) The optical access network of claim 7, wherein the processor is further arranged to detect malicious or unauthorized usage of an optical network unit and to cause at least one of the plurality of switching elements to switch the optical network unit subject to such usage out of the series.

9. (original) The optical access network of claim 7, wherein the processor is further arranged to process the upstream and downstream optical signals prior to re-transmission, and wherein the processing includes implementing at least one of a ring protocol and encryption.

10. (currently amended) A protection switch for an optical access network comprising a plurality of optical network units connected to an optical line terminal in a ring topology in which the optical network units are connected together in a series, the optical line terminal being connected to ~~the~~ a first optical network unit in the series[[,]] and ~~the~~ a last optical network unit in the series ~~being connected to the optical line terminal~~, and wherein each of the connections to and from each optical network unit is ~~are~~ via ~~the~~ a protection switch, the protection switch comprising:

at least one signal monitor for monitoring the connections from the optical network units to detect a loss of signal from [[an]] the optical network ~~unit~~ units, and

a plurality of switches, one for each optical network unit, responsive to the detection of loss of signal from ~~the~~ a respective optical network unit to switch the respective optical network unit out of the series such that continuity of the ring topology is maintained among remaining of the plurality of optical network units.

11. (currently amended) The protection switch of claim 10, wherein each of the plurality of switches are cross-bar switches arranged so that, when [[an]] the respective optical network unit is switched out of the series, the connections to and from the respective optical network unit are connected together.

12. (currently amended) The protection switch of claim 10, wherein the at least one signal monitor comprises a plurality of photodetectors, each photodetector being arranged to detect signals on the connection from a ~~respective~~ different optical network unit.

13. (original) The protection switch of claim 12, wherein each photodetector is arranged to control its respective switching means directly.

14. (original) The protection switch of claim 12, further comprising a controller, the controller being coupled to the photodetectors and being adapted for controlling the plurality of switches.

15. (original) The protection switch of claim 10, further comprising a controller arranged to control the plurality of switches, wherein the at least one signal monitor comprises a photodetector connected to the controller and arranged to monitor optical signals in the ring, the controller being arranged to toggle at least one of the plurality of switches in the event of a loss of signal in the ring to identify a faulty connection.

16. (original) The protection switch of claim 10, wherein the at least one signal monitor comprises a controller arranged to control the plurality of switches, the controller including:

means for receiving downstream optical signals from the optical line terminal;

means for re-transmitting said downstream signals to the first optical network unit in the series;

means for receiving upstream optical signals from the last optical network unit in the series;

means for re-transmitting said upstream optical signals to the optical line terminal; and

a processor arranged to control the plurality of switches, the processor being arranged to toggle at least one of the plurality of switches in the event of a loss of signal in the ring to identify a faulty connection.

17. (original) The protection switch of claim 16, wherein the processor is further arranged to detect malicious or unauthorized usage of an optical network unit and to cause at least one of the plurality of switches to switch the optical network unit subject to such usage out of the series.

18. (original) The protection switch of claim 16, wherein the processor is further arranged to process the upstream and downstream optical signals prior to re-transmission, and wherein the processing includes implementing at least one of a ring protocol and encryption.

19. (currently amended) A method for protecting an optical access network comprising a plurality of optical network units connected to an optical line terminal in a ring topology, in which the optical network units are connected together in a series, the optical line terminal being connected to ~~the~~ a first optical network unit in the series[[,]] and ~~the~~ a last optical network unit in the series ~~being connected to the optical line terminal~~, and wherein each of the connections to and from each optical network unit is ~~are~~ via a protection switch, the method comprising:

monitoring the connections from the optical network units to detect a loss of signal from [[an]] the optical network ~~unit~~ units; and

responsive to the detection of loss of signal from [[an]] a respective optical network unit, switching the respective optical network unit out of the series such that continuity of the ring topology is maintained among remaining of the plurality of optical network units.

20. (currently amended) The method of claim 19, further comprising, when [[an]] the respective optical network unit is switched out of the series, connecting together the connections to and from that respective optical network unit.

21. (original) The method of claim 19, further comprising:
monitoring optical signals in the ring to detect loss of signal in the ring; and
toggling switches in the protection switch in the event of a loss of signal in the ring to identify a faulty connection.

22. (original) The method of claim 21, further comprising:

monitoring optical signals in the ring to detect malicious or unauthorized usage of an optical network unit; and

responsive to the detection of malicious or unauthorized usage, switching the optical network unit subject to such usage out of the series.